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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,549	03/28/2001	Kohei Murao	1344.1064	9436

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EXAMINER

KIM, CHONG R

ART UNIT PAPER NUMBER

2623

DATE MAILED: 12/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,549

Applicant(s)

MURAO, KOHEI

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Specification

1. Applicant is respectfully requested to provide copies of the papers cited on pages 6 and 7 of the specification, so as to complete the disclosure. If these reports are classified or otherwise unavailable, then all references to them ought to be removed from the specification and replaced with only that material necessary for a complete understanding of the present invention.

The applicant is suggested to file copies of the papers along with an information disclosure statement following the requirements of 37 CFR 1.98(b), which requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) which states, "the list may not be incorporated into the specification but must be submitted in a separate paper."

Claim Objections

2. Claims 1-8 are objected to because of typographical errors. Referring to claim 1, there appears to be a typographical error in the phrase "for realizing on a computer:" in line 2. It appears that the applicant intended the phrase to read "for realizing on a computer comprising:". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Takahashi, U.S. Patent No. 6,292,577 ("Takahashi") and Kenet et al., U.S. Patent No. 5,836,872 ("Kenet").

Referring to claim 1, Takahashi discloses a computer readable recording medium recorded with a diagnosis supporting program for realizing on a computer comprising:

- a. a feature quantity extracting function (5) for extracting image-wise feature quantities from a diagnosis target image (col. 7, lines 31-38)
- b. a reference image retrieving function (10) for retrieving reference images which are image-wise similar to the diagnosis target image out of a database stored with reference images and feature quantities of reference images, based on the feature quantities extracted by the feature quantity extracting function (col. 8, line 50-col. 9, line 10 and figure 6).

Takahashi fails to explicitly disclose that the feature quantity extracting function extracts image-wise feature quantities of a lesion position detected by a lesion position detection function. However, this feature was exceedingly well known in the art. For example, Kenet discloses a lesion position detecting function for detecting a lesion position from a diagnosis target image (col. 19, lines 50-65), and a feature quantity extracting function for extracting image-wise feature quantities of the lesion position detected by the lesion position detecting function (col. 20, lines 26-67).

Takahashi and Kenet are both concerned with diagnosis supporting systems that are based on image processing. Takahashi explains that the “image-wise feature quantities” can comprise a variety of different anatomical structures such as the area of nuclear regions, the area of interstitial regions, ect. (col. 9, lines 30-33). Takahashi further explains that the feature quantity is not limited to these features quantities, and may be freely chosen by the user (col. 9, lines 33-34 and lines 52-53). Therefore, it would have been obvious to modify the feature quantity extracting function of Takahashi, so that it extracts image-wise feature quantities of a lesion position detected by a lesion position detection function as taught by Kenet, in order to aid the diagnosis of pathological tissue by determining whether a tumor must be removed and to determine the sort of tumor (Takahashi, col. 2, lines 5-12).

Referring to claim 2, Takahashi further discloses a database registering function for registering the diagnosis target image and feature quantities thereof into the database (col. 7, lines 14-18).

Referring to claim 3, Takahashi further discloses a similarity calculating function for calculating image-wise similarities between each of the reference images stored in the database and the diagnosis target image, respectively, by matching the feature quantities of each of the reference images stored in the database with the feature quantities of the diagnosis target image [col. 8, lines 50-65. Note that $\text{sim}(X, Y)$ is interpreted as the similarity calculating function], wherein the reference image retrieving function retrieves reference images in order of similarity as calculated by the similarity calculating function (col. 10, lines 18-22).

Referring to claim 4, Takahashi further discloses that the similarity calculating function calculates similarities, taking account of a weighting set (col. 2, lines 36-50). Takahashi fails to

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explicitly disclose a weighting set for each organ. However, Takahashi is concerned with optimizing the weighting set by utilizing different weights for different types of conditions (col. 9, line 66-col. 10, line 1). Therefore, it would have been obvious to modify the weighting set of Takahashi, so that it is a weighting set for each organ, in order to enhance the system by utilizing a weighting set that is optimized for each organ.

Referring to claim 5, Takahashi further discloses that the weighting is set in a variably constituted table (col. 8, lines 24-26).

Referring to claim 6, Takahashi further discloses a finding displaying function for displaying findings related to the reference images retrieved by the reference image retrieving function (col. 9, lines 4-10 and figure 6).

Referring to claim 7, Kenet further discloses that the lesion position detecting function detects a lesion position of a designated organ (col. 20, lines 27-33. Note that skin is the designated organ).

Referring to claim 8, Kenet further discloses that the feature quantity extracting function extracts a global feature quantity (col. 22, lines 59-65), a topical feature quantity (col. 20, lines 35-58), and a common feature quantity (col. 22, lines 42-47), for every lesion position of the diagnosis target image (col. 19, lines 50-53).

Referring to claims 9 and 17, see the rejection of at least claim 1 above.

Referring to claims 10 and 18, see the rejection of at least claim 2 above.

Referring to claims 11 and 19, see the rejection of at least claim 3 above.

Referring to claims 12 and 20, see the rejection of at least claim 4 above.

Referring to claims 13 and 21, see the rejection of at least claim 5 above.

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Referring to claims 14 and 22, see the rejection of at least claim 6 above.

Referring to claims 15 and 23, see the rejection of at least claim 7 above.

Referring to claims 16 and 24, see the rejection of at least claim 8 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Roehrig et al. U.S. Patent No. 6,075,879 discloses a method for identifying a lesion using information from multiple images.

b. "Computer Aided Diagnosis System for Lung Cancer Based on Helical CT Images" by Kanazawa et al., discloses an assisted automatic diagnosis system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

ck

December 3, 2003


Jon Chang
Primary Examiner